

CLAIMS

WE CLAIM:

1. A reinforced hydroform, comprising:
5 an outer structural member having an open bore; and
a structural foam supported by the outer structural member, wherein the
structural foam extends along at least a portion of the length of the outer structural
member.
- 10 2. The reinforced hydroform as defined in claim 1, further including an
inner structural member having an open section, the inner structural member being
received in the bore of the outer structural member.
3. The reinforced hydroform as defined in claim 2, wherein the structural
15 foam extends along at least a portion of the length of the inner structural member and
the outer structural member.
4. The reinforced hydroform defined in claim 3, wherein the outer
structural member is metal.
- 20 5. The reinforced hydroform defined in claim 3, wherein the inner
structural member is metal.
6. The reinforced hydroform defined in claim 1, wherein the hydroform is
25 coupled to an automobile frame system.
7. The reinforced hydroform defined in claim 1, wherein the hydroform is
coupled to a building frame system.
- 30 8. The reinforced hydroform defined in claim 1, wherein the structural
foam extends along at least a portion of the length of the bore.

9. The reinforced hydroform defined in claim 1, further comprising an adhesive layer disposed on at least a portion the structural foam.

10. The reinforced hydroform defined in claim 1, wherein the structural
5 foam is an epoxy-based resin.

11. The reinforced hydroform defined in claim 10, wherein the structural foam is L5206 structural foam commercially available from L&L Products of Romeo, Michigan.

10

12. The reinforced hydroform defined in claim 10, wherein the structural foam is L5207 structural foam commercially available from L&L Products of Romeo, Michigan.

13. The reinforced hydroform defined in claim 10, wherein the structural foam is L5208 structural foam commercially available from L&L Products of Romeo, Michigan.

15

14. The reinforced hydroform defined in claim 10, wherein the structural foam is L5209 structural foam commercially available from L&L Products of Romeo, Michigan.

20

15. A reinforced hydroform, comprising:
an outer elongated tubular bar having an open center;
25 an elongated inner tubular bar having an open bore coextensive therewith, the inner tubular bar being received in the open center of the outer tubular bar so as to extend concentrically therewith; and
a structural foam supported by the outer surface of the inner tubular bar, wherein the structural foam extends along at least a portion of the length of the inner
30 tubular member.

16. The reinforced hydroform defined in claim 15, wherein the structural foam fills at least a portion of the diameter of the open center.

17. The reinforced hydroform defined in claim 15, wherein the structural foam extends along at least a portion of the length of the open center.

5 18. The reinforced hydroform defined in claim 15, further comprising an adhesive layer disposed on at least a portion of the structural foam.

19. The reinforced hydroform defined in claim 15, wherein the structural foam is an epoxy-based resin.

10

20. The reinforced hydroform defined in claim 19, wherein the structural foam is L5206 structural foam commercially available from L&L Products of Romeo, Michigan.

15 21. The reinforced hydroform defined in claim 19, wherein the structural foam is L5207 structural foam commercially available from L&L Products of Romeo, Michigan.

20 22. The reinforced hydroform defined in claim 19, wherein the structural foam is L5208 structural foam commercially available from L&L Products of Romeo, Michigan.

25 23. The reinforced hydroform defined in claim 19, wherein the structural foam is L5209 structural foam commercially available from L&L Products of Romeo, Michigan.

24. A method for forming a reinforced hydroform, comprising:
providing an outer structural member having an open bore;
reinforcing the outer structural member by applying a structural foam thereto;
30 hydroforming the outer structural member, causing the exterior surface of the structural member to assume a desired configuration; and
heating the structural foam to a temperature sufficient to cause the structural foam to expand and adhere to adjacent surfaces.

25. The method for forming a reinforced hydroform as defined in claim 24, further including the step of providing an inner structural member received in the open bore of the outer structural member so as to form a structural assembly.

5

26. The method for forming a reinforced hydroform as defined in claim 24, further including the step of reinforcing the structural assembly by applying a structural foam thereto.

10

27. The method for forming a reinforced hydroform as defined in claim 24, further including the step of applying an adhesive layer on the structural foam for adhering the structural foam to adjacent surfaces.